



## Abstract

SIM (Subscriber Identity Module)-chipcard for GSM-type cellular telephones, containing data processing means (20), comprising storage means (200) which make it possible to store data containing at least identification data of a subscriber of a telecommunications network. Electrical contacts (24) on the surface of the chipcard enable data exchange between said processing means (20) and a mobile communication station (1), in which the card may be inserted in a removable fashion.

The chipcard further contains at least a coil, enabling the establishment of communication between said processing means and an external device (3), located outside said mobile communication station, via radio waves.

(figure 1)



SIM

2 standards  
SIM.

## Chipcard and Method for Communication Between an External Device and a Chipcard

The present invention relates to a chipcard according to the preamble of the patent claim 1, to a mobile station according to the preamble of patent claim 7, to a device, capable of communicating with a chipcard according to the invention, as well as to various methods and applications of these methods to communication between a chipcard and an external device. More precisely, the present invention relates to the problem of communication between a chipcard and an external device, particularly a chipcard of the SIM-type, intended to be used, for instance, in a cellular phone, for example of the GSM-format.

In mobile telephone networks, such as, for example, the GSM-network (Global System for Mobile Communication), for instance, the identity of the subscribers is stored in a chipcard referred to as a SIM card (Subscriber Identity Module). The SIM card is removable, so that a user may receive the calls intended for him on the mobile device of his choice by moving the SIM card from one device to another. Furthermore, methods are known for loading the SIM card with a monetary amount in different ways as well as for charging telephone communication fees to this amount. Consequently, the mobile stations (MS), such as, for example, cellular telephones of the GSM type, are composed of two elements, the mobile device and the SIM chipcard.

Today there are two standard formats of SIM cards. The full-size format corresponds to the size of a credit card, while the plug-in format, which is adapted especially to the miniaturized portable telephones, has a size of approximately 25 mm by 10 mm. The functionality of cards in these two formats is identical.

Generally, SIM cards contain data processing means, in most cases a microcontroller integrated in a chip. These data processing means comprise, on the one hand, a zone with a read-write-memory (intermediate) and/or read-only-memory, which makes it possible to store programs and/or data files, particularly identification data of the subscriber owning the card, as well as



calculating and processing means, capable of executing different algorithms, in particular algorithms enabling the execution of subscriber identification and communication encryption.

This architecture of the SIM cards, wherein certain aspects are standardized within the framework of the GSM-standard, is very "open" since various systems of value-added services (VAS) were considered, which systems are able to fully profit from the functionality of these cards. In particular, numerous services were considered which use the memory available on the SIM card and/or the processing possibilities of the microcontroller on the card for extending the functionality of the wireless telephone.

New data or new programs, necessary for the execution of those value-added services, may generally be loaded onto the card in one of the following three ways:

1) Through insertion of the card in a suitable read-write-device for chipcards. The original data loaded on the card, i.e. prior to its delivery to a client is generally loaded in this fashion. However, owing to the fact that read-write-devices for chipcards are not widespread, this method cannot be generally used in an easy fashion for updating or completing information registered on the card, after the card has been distributed. Furthermore, the card must be removed from the mobile station before it can be inserted into another device, which is not very practical, particularly in the case of the very small plug-in cards which cannot be handled very practically.

2) Through direct typing in of data on the keyboard of the mobile station. Owing to the heavily reduced size of keyboards normally used for mobile telephones and because of the limited number of keys, this approach is only appropriate for the entry of very short data, for instance a password or a yes/no-type answer during execution of programs by the card's microcontroller, but by no means for the entry of complete programs into the SIM card.



3) The data and/or programs can be loaded remotely into the mobile station, for instance, in the form of short messages containing a header, which enables the mobile station to recognize the short message as such, and are then transferred by the mobile equipment into the card. This transmission can take place in both directions. The patent document EP680358, filed in the name of the applicant, describes a technique which makes it possible to remotely load data and programs into a mobile station in a transparent fashion. However, this type of transmission can only take place from another station, connected to the mobile radio network, for instance, from another mobile telephone. Moreover, the transmission can only take place at the cost of receiving a communication generally subject to fees in the mobile radio network.

The patent application PCT/CH96/00464, filed in the name of the applicant, describes a method for obtaining products or information by means of a mobile station. A code unambiguously identifying a product and its supplier must be entered into the mobile station, and is then transmitted to the product supplier, together with identification data of the subscriber, by means of short messages via the mobile radio network. The product code must comprise a large number of alphanumeric characters, in order for the product and the product supplier to be identified unambiguously. Furthermore, control characters (parity) are necessary to recognize and correct possible errors in the product code. None of the means mentioned above prove to be really appropriate for entering this type of information into the mobile station in a comfortable way.

On the other hand, a certain number of new value-added services require that the data or programs stored in a SIM card may be accessed from an external device, for instance from another telephone.

Various patent documents, particularly documents classified in the group H04M-00100 of the international patent classification system, describe systems which enable the entry of data, for example dial pulses or dial tones, into a telephone handset. However, these documents, for example DE2427527 or US4130736, generally require adaptations of the telephone handset and,



therefore, cannot be used for exchanging data with a conventional mobile station. Moreover, these documents allow only a one-way communication, generally from an external device to the telephone handset. This is particularly the case for the patent document EP0506544. Finally, these documents generally do not relate to the transmission of data or programs into the memory zone of a SIM chipcard inserted in a mobile station:

Consequently, it is an object of this invention to propose a device and a method for communication, which are suitable for two-way transmission of data and programs to or from a SIM chipcard.

It is a further object of this invention to propose a telecommunications system which does not have the shortcomings of the systems of the prior art.

According to the invention, these objects are particularly achieved with the aid of a chipcard having the elements of the characterizing portion of patent claim 1, a mobile station having the elements of the characterizing portion of patent claim 7, a data processing device having the elements of the characterizing portion of patent claim 14, and a method having the elements of the characterizing portion of one of the patent claims 20 or 26.

In particular, the objects of the invention are achieved with the aid of a chipcard, for instance a SIM chipcard having at least one wireless interface, which makes it possible for the card's processing means to communicate directly with an external device located outside the mobile communications device, neither the electrical contacts of the chipcard nor the mobile station being passed.

In a preferred embodiment of the invention, the wireless interface has at least one coil and, consequently, the direct communication between the SIM chipcard and an external device takes place through electromagnetic waves.



therefore, cannot be used for exchanging data with a conventional mobile station. Moreover, these documents allow only a one-way communication, generally from an external device to the telephone handset. This is particularly the case for the patent document EP0506544. Finally, these documents generally do not relate to the transmission of data or programs into the memory zone of a SIM chipcard inserted in a mobile station.

In the patent application WO 95/38814 a telephone card with contacts is described which is additionally provided with a wireless interface for another application, for example for use as a ticket. This card however contains no subscriber identification and cannot be used as a SIM card.

Described in the patent application GB 2 298 613 A is a SIM card with a first interface, provided with contacts, for connection to a mobile radio telephone, which has in addition a second interface, provided with contacts, for connection to an external device. Before this SIM card according to GB 2 298 613 can be connected to an external device, however, it has to be removed from the mobile radio telephone.

Described in the patent application GB 2 305 241 A is a receiving device which can receive chipcards in order to transmit data from a first chipcard to a second chipcard, or via a personal computer and a network connection to a distant station. Also according to GB 2 305 241 A, a chipcard cannot be inserted in a mobile radio telephone and in a receiving device at the same time.

Described in the patent application EP 555 992 A1 is an adapter for mobile radio telephones which can accept a SIM card and has a data interface and converting means in order to receive data, for example from a personal computer, to convert it into SMS (Short Message Service) format, and transmit it to the mobile radio telephone. The SMS card has to be removed from the mobile radio telephone in order to connect the adapter according to EP 555 992 A1 to the mobile radio telephone.

Described in the patent application DE 43 21 381 A1 is a device adapter, for example for a mobile radio telephone, which can be temporarily connected to the respective device via a card interface in order to load new versions of



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software programs into the device from a personal computer or from a memory contained in the device adapter. A card usually connected to the device, for example a SIM card, must be removed from the device in order to connect the adapter according to DE 43 21 381 A1 to this device.

Consequently, it is an object of this invention to propose a device and a method for communication, which are suitable for two-way transmission of data and programs to or from a SIM chipcard.

It is a further object of this invention to propose a telecommunications system which does not have the shortcomings of the systems of the prior art.

According to the invention, these objects are particularly achieved with the aid of a chipcard having the elements of the characterizing portion of patent claim 1, a mobile station having the elements of the characterizing portion of patent claim 7, a data processing device having the elements of the characterizing portion of patent claim 14, and a method having the elements of the characterizing portion of one of the patent claims 20 or 25.

In particular, the objects of the invention are achieved with the aid of a chipcard, for instance a SIM chipcard having at least one wireless interface, which makes it possible for the card's processing means to communicate directly with an external device located outside the mobile communications device, neither the electrical contacts of the chipcard nor the mobile station being passed.

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In this fashion, data can be directly written into the chipcard or read from the card by an external device, for example another wireless telephone or any data processing device whatsoever.

An advantage of the invention is that it can be applied without the necessity of any imperative changes of the mobile communication equipment. Thus, a chipcard having a wireless interface according to the invention can be distributed by a network administrator to those subscribers who have subscribed to a value-added service suitable for benefiting from the possibilities of these cards, and the card can be directly used by these subscribers by simply inserting it in a conventional mobile station. Consequently, it is not necessary to replace or change the existing equipment, except for the chipcards, which can be produced at very low cost.

The present invention also relates to various methods and services which can be applied thanks to the card according to the present invention.

The present invention will be better understood with the aid of the description, given by way of example and illustrated by the appended figures:

Figure 1 shows a schematic and perspectival view of a mobile station, in which a chipcard according to the invention is inserted, and of an external device according to the invention.

Figure 2 shows a schematic view of a chipcard according to the invention.

Although the description, given by way of example, relates particularly to the special case of a chipcard of the SIM-type (Subscriber Identity Module) used in combination with a portable telephone of the GSM-type, it is important to understand that the card may just as well be used in combination with any other type of mobile station, for instance with the GSM, PCN, NMT, TACS, PDC, DCS1800, or with any other standard of mobile communications, as well as with any type of chipcard used in a mobile communications network for storing subscriber identity information.



Figure 2 illustrates in schematic fashion an embodiment of a SIM chipcard according to the invention. The chipcard 2, in this example a card of the credit card format (full-size), has a conventional microcontroller 20 which is embedded in the plastic carrier 25 of the card and which is responsible for the SIM functionality of the card. The microcontroller 20 has a read-write-and/or read-only-memory zone 200 as well as a data processing zone 201, which are combined in a single integrated circuit. The microcontroller 20 is responsible for the application of the card's SIM functionality, as described, for instance, in the article "SIM Cards" by T. Grigorova and I. Leung, which was published in *Telecommunication Journal of Australia*, vol. 43, No. 2, 1993, pages 33 to 38, as well as for new functionality loaded onto the card at a later point in time. The chipcard also has contact means, for instance an area 24 with eight metallic contacts on the surface of the card, by means of which the card communicates with the mobile station 1, into which the card is inserted. The electrical energy supply of the card, or at least of the microcontroller 20, takes place through the communication station 1 with the aid of the contacts 24.

According to the invention, the chipcard 2 has a second integrated circuit 21 responsible for the direct communication with an external device. The second integrated circuit is connected with the microcontroller 20 via an interface 22. Moreover, the chipcard 2 has a coil 23 which is connected to the second integrated circuit 21 and embedded in the plastic carrier 25 of the chipcard. The coil 23 may be manufactured, for example, by coiling up a wire or by means of any other appropriate technique. Nowadays, integration of a coil into a chipcard is well mastered and is described, for instance, in the patent applications WO91/16718 and WO95/33246 (both in the name of Gustafson). In the case of a chipcard of the full-size format, the coil is preferably laminated in between two layers of plastic carriers 25 forming the card. In the case of a plug-in-SIM card, the coil can either be embedded into the plastic carrier, or be attached to the outside of this carrier by means of an adhesive, or by any other appropriate means.

Thanks to this interface 21, 23, the chipcard 2 inserted into a mobile station 1 may communicate directly with an external device 3, represented in a symbolic fashion and also provided with a coil or an antenna 30, via



120kHz

electromagnetic waves, preferably via radio waves at a frequency close to approximately 120 kHz. The maximum communication distance depends on the characteristic of the coils 23, 30, as well as on the transmitting power, which is chosen such that too much strain on the energy supply of the station 1 and the card 2 can be avoided. For instance, a range of multiple meters can be achieved by means of conventional techniques without big problems. It is important to be careful that the receiving area 10 for the SIM card in the station 1 is not shielded electromagnetically around the coil so that a radio link can be established.

In this fashion, data and/or programs can be exchanged between the external device 3 and the chipcard 2 in both directions. Thereby, it becomes possible to remotely load data or programs into the memory 200 of the chipcard, to use or access this memory from an external device, or to establish any dialogue or monologue between the processing means 20, 21 on the card and any external device 3 suitable for this purpose in an easy way. The communication between the chipcard 2 and the external device 3 takes place without using the mobile radio network (GSM), to which the station 1 belongs.

In this example, the chipcard is provided with a conventional microcontroller 20, having storage means 200 and processing means 201, as well as with a communication module 21, which are implemented in the form of two separate integrated circuits. This arrangement makes it possible to use standard microcontrollers 20, which are available at low cost, and to add to them a specific communication module. However, one skilled in the art will realize that it is also possible to integrate the communication module 21 into the same integrated circuit as the microcontroller 20 or, for example, to implement a part of the read-write and/or read-only-memory of the microcontroller 20 in the form of a separate integrated circuit.

In the same way as the microcontroller 20, the communication module 21 can be fed by the station 1 via contacts 24. In a preferred embodiment, the communication module is energetically independent of the microcontroller 20 and of the communication station 1, and it is supplied with energy through the external device 3 with the aid of the coil 23. In this case, a



storage capacitor, for the energy obtained via the coil 23, is preferably contained in the chipcard. A back-up battery (accumulator), fed by the station or via the coil 23, can also be present on the card. It is also possible to arrange two coils on the card 2, one for the actual communication with the external device 3 and the other for the energy supply of the module 21.

Depending on the application, the external device 3 may be any apparatus provided with an interface 30 that makes it possible to directly communicate with the card 2 via radio waves without using the mobile GSM radio network. In the simplest case, the external device 3 can consist of a further chipcard according to the invention, inserted into another mobile station 1. The invention thus makes it possible to exchange any type of data or programs which are stored in the SIM cards of the two apparatuses. Depending on the type of SIM card and depending on the administration programs of these two cards, it is possible, for instance, to transfer or copy programs and/or data from one card to the other, which programs and/or data extend the functionality of the card or provide access to new services. If the card contains a monetary amount from which communication fees are deducted, it is also possible to transfer the complete or partial remainder of the amount from one card to the other by means of an appropriate communication program and, thereby, load a chipcard with the amounts available on another card.

In an application variant of the invention, the external device 3 is a computer or a terminal provided with an appropriate radio interface 30. In this case, the device 3 is preferably provided with data entry means, not illustrated, for instance with a keyboard and with data display means, not illustrated, for instance with a display (screen). Furthermore, the device 3 is preferably connected to a communications network 31, for instance with an Intranet or with the Internet via a modem, not illustrated, or with any type of fixed or mobile communications network. Data or programs entered into device 3 can then be easily copied into the chipcard 2 via the radio interface 30, 23. In the opposite direction, the data stored in the chipcard can be transmitted to the display of the device 3, and can be displayed there.



An interactive dialogue, consisting of a sequence of communications in both directions, is also possible between the card 2 and a computer 3. A possible application of such a dialogue relates to the selection of an option from a menu, shown on the display of an external device 3, with the aid of a mobile telephone. In this case, the display of the device 3 shows a menu, for example a list of products or information proposed for sale. The user of a mobile station 1 according to the invention can control the position of a cursor in this menu by operating the cursor movement keys 13 on the keyboard of his mobile telephone. The cursor movement instructions are transmitted from the keyboard to the chipcard 2, and are sent from this card to the device 3 with the aid of the coil 3. To validate the selected menu option, for instance to order a product, the user uses a confirmation key on his keyboard, for instance the # key. The confirmation command is transmitted to the device 3 in the same fashion, which then executes a routine corresponding to the selected option. The executed routine can comprise, for example, the establishment of communication with the supplier in the fixed or mobile communications network 31, with which the device 3 is connected, for example via a modem, as well as the transmission of the order to this supplier. In a variant, the routine executed with the confirmation of the menu option includes the emission of a selected product. At least a portion of the data received in this response, for instance the identification code of the ordered product, is then stored in the zone of the intermediate memory 200 of the chipcard 2. The application program loaded into the chipcard can then, for example, send a message to the product supplier, for instance a short message (SMS short message) containing this product identification code. Various other possibilities of product orders are described, inter alia, in the patent application PCT/CH96/00464.

Naturally, the chipcard 2 according to the invention not only can be used to control the position of an object, but also to control multiple characteristics of one or multiple objects, for instance position, color, shape, function, visibility, etc.

In the case where the menu in the display of the device 3 corresponds to an Intranet or Internet home page, for instance displayed by an



appropriate browser, the communication between the chipcard and the device 3 preferably contains instructions in the JAVA language (registered trademark by SUN MICROSYSTEMS) which can be directly interpreted by the said browser. Conversely, it is also desirable that the processing means 20, 21 on the card can also execute instructions in the Java language so that a directed communication is made possible based on instructions of this programming standard well known everywhere. Other preferably object-oriented languages, such as, for example, C or C++, could also be used.

The external device 3 could, for example, also be a monetary device, for instance a coin money machine, or an electronic cash ("e-cash") machine, or a cash register in a store. For the case where the external device 3 is a coin machine, the direct communication with the aid of the coils 23, 30 can make it possible, for example, to reload from the machine the monetary amount stored on the chipcard 2. The advantage consists in that the SIM card can be reloaded without having to be removed from the telephone handset 1 and without establishing a radio communication subject to a fee. A financial transaction may also take place in the opposite direction by debiting the monetary amount stored in the chipcard 2 with a given amount and by directly transmitting this given amount to the external device 3, for instance, a machine or a cash register in a department store, with the aid of the wireless interface according to the invention. A transaction of purchase payments in a store equipped with cash registers 3, provided with interfaces 30 for communicating with chipcards according to the invention, can thus comprise the following steps:

- Direct transmission of the amount to be paid by the cash register 3 to the chipcard 2.
- Temporary storage of this amount in the memory 200 of the SIM chipcard.
- Execution of a routine by the microcontroller 20, so that the amount to be paid is shown on the display 12 of the mobile station 1.



- In case of consent to the displayed figure, confirmation of this amount by the customer, for instance by pressing the # key.
- Direct transmission of this confirmation command to the device 3 with the aid of the interface 23-30.

For example, the monetary amount stored on the chipcard 2 can be charged instantaneously with the amount to be paid. If the monetary amount on the card 2 suffices to settle the transaction, the transaction amount can be debited to the card, and can be transferred to the device 3 via the interface 23, 30 according to any type of protocol and according to the same rules of security and confidentiality as have been proven, for example, for transactions of electronic cash.

In a variant, the transaction amount can be transferred onto a bank account of the owner of the device 3 by any bank or financial institution of which the subscriber is a client. For that purpose, in the case where the amount shown on the display 12 is confirmed, the program loaded on the chipcard 2 can contain an instruction for emission of a SMS short message, containing a debit command, by the mobile station 1 or by the device 3 to a banking establishment.

The external device 3 can also be an access control device, for instance a device of the electronic doorkeeper type which makes it possible to control entries and exits in protected locations, for example in a factory or within the fenced-in area of an amusement park. For this application, the chipcard 2 can be loaded with an electronic key stored in the memory 200. To gain access to a protected zone of the locality, it is thus necessary that a direct communication of the described type is established between the chipcard 2 and the device 3 with the aid of the coil 23, 30. Access to the restricted area is granted only if, based on this communication, it turns out that the electronic key stored in the card 2 is correct and that its owner has the right to penetrate the protected zone. The access method can include the emission, of a message by either the communication station 1 on the mobile radio network or by the access control device 3 on its own communications network 31, a message of



icam/  
key



the SMS type, for instance intended for a central computer, not illustrated, which administers and registers the changes of place within the locality. Administration of the place changes can result, for instance, in billing or debiting the account of the subscriber with an amount depending on the entries that have taken place. In this application, it is advantageous that the electronic module is supplied electrically thanks exclusively to the coil 23, so that access is even possible when the batteries of the mobile station 1 are run down.

One skilled in the art will understand that these applications are merely given by way of non-restrictive examples. Expressed in more general terms, the invention relates to all types of methods which include a step of direct communication with a SIM chipcard and, if need be, a step of conventional communication via a conventional radio network.

In a variant embodiment of the invention, the communication of data stored on the chipcard 2 between <sup>10</sup> an external device 3 takes place with the aid of an interface that is disposed in the mobile equipment 1 rather than directly on the chipcard 2. The communication can take place, for example, with the aid of an antenna, a coil or an infrared transceiver, integrated on the housing of the wireless telephone 1. However, this embodiment requires alterations of the apparatus 1 and, consequently, cannot be applied in an easy fashion by subscribers who are equipped with conventional communication stations 1 without this wireless interface.

# Claims

## 1. SIM chipcard (2) comprising:

data processing means (20) responsible for the card's SIM- functionality and containing storage means (200) which make it possible to store data, the said data containing at least identification data of a subscriber of a mobile telecommunications network;

electrical contacts (24) on the surface of the SIM chipcard, which make it possible to exchange data between the said processing means (20) and a mobile station (1), in which the SIM chipcard (2) may be inserted in a removable fashion;

at least one further interface which enables the data transmission between the said data processing means (20) and an external device (3);

characterized in that the said further interface is a wireless interface (21, 23), which makes it possible to transmit data between the said processing means (20) and an external device (3) located outside the mobile station (1) directly and without passing electrical contacts when the SIM chipcard is inserted in the mobile station (1), this contactless data transmission being controlled by the mobile station (1) via the said electrical contacts (24).

2. SIM chipcard according to the preceding claim, characterized in that the said wireless interface contains at least one coil (23), which enables the establishment of communication between the said processing means (20) and the said external device (3) via electromagnetic waves.

3. SIM chipcard according to the preceding claim, characterized in

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that the said processing means comprise a microcontroller (20) responsible for the said SIM-functionality of the card, at least an electronic module (21) connected to the said coil (23) and responsible for the direct communication with the said external device (3), and an interface (22) between the said microcontroller and the said electronic module.

4. SIM chipcard according to the preceding claim, characterized in that the electrical power supply of the said electronic module and of the said coil is provided by the said mobile station (1) via the said electrical contacts (24).

5. SIM chipcard according to claim 3, characterized in that the electrical power supply of the said electronic module (21) and of the said coil (23) is provided by the said external device by interposing the said coil, so that radio communication between the SIM chipcard (2) and the external device (3) is possible even if the batteries of the mobile station (1) are run down.

6. SIM chipcard according to one of the preceding claims, characterized in that the processing means (20, 21) are capable of executing instructions in the Java language.

7. Mobile station (1) comprising means for communicating in a mobile telecommunications network and a receiving point (10) for inserting a removable SIM chipcard (2), which is intended for storing data containing at least the identification data of a subscriber of the said mobile telecommunications network,

characterized by at least one wireless interface (21, 23) enabling a data transmission between the said SIM chipcard (20), inserted in the mobile station, and an external device (3), located outside the mobile station (1), without using the said mobile telecommunications network, whereby this data transmission can be controlled by the mobile station (1).

8. Mobile station according to the preceding claim, characterized in

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that the said wireless interface contains at least one coil (23), which makes it possible for the said SIM chipcard (2) to communicate with the said external device (3) via electromagnetic waves.

9. Mobile station according to the preceding claim, characterized in that the said coil (23) is integrated in the said SIM chipcard (2).

10. Mobile station according to claim 8, characterized in that it further comprises electrical batteries, and in that the said wireless interface (21, 23) can be supplied with energy by the said external device (3) by interposing the said coil (23) so that radio communication between the SIM chipcard (2) and the external device (3) is possible even if the said electrical batteries are run down.

11. Mobile station according to one of the claims 8 to 10, characterized in that the said receiving point (10) is not shielded electromagnetically to the outside.

12. Mobile station according to claim 7, characterized in that the said wireless interface contains at least one infrared transmitter-receiver on the housing of the said station.

13. Mobile station according to one of the claims 7 to 12, characterized in that it further comprises a confirmation key (11) and control means (13) for a cursor.

14. Mobile station according to one of the claims 7 to 13, characterized in that the said data transmission can be controlled with the keyboard of the mobile station (1).

15. Data processing device (3), characterized in that it contains a wireless interface (30), which makes it possible to communicate directly with a SIM chipcard (2) according to one of the claims 1 to 6, which SIM chipcard is inserted into a mobile station (1) according to one of the claims 7 to 14, without

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using the said mobile radio network.

16. Data processing device according to the preceding claim, characterized in that the said interface contains at least a transmitter-receiver (50) which enables the establishment of communication with a SIM chipcard (2) according to one of the claims 2 to 6 via electromagnetic waves.

17. Data processing device according to one of the claims 14 or 15, characterized in that it contains the following: means for displaying a multiple-choice menu, and means for changing the position of a cursor in the said menu, respectively for executing a method corresponding to the choice made in the said menu, as the reaction to the cursor movement, respectively confirmation instructions which have been received at the said wireless interface.

18. Data processing device according to the preceding claim, characterized in that it contains an interface (31) of the Internet-Intranet-type.

19. Data processing device according to one of the claims 15 to 18, characterized in that it is integrated in a monetary device.

20. Data processing device according to one of the claims 15 to 18, characterized in that it is integrated in an access control device.

21. Method for communication between an external device (3) and a mobile station (1) comprising means for communication in a mobile radio network and a receiving point (10) for inserting a removable SIM chipcard (2), intended for storing data containing at least identification data of a subscriber of the said mobile radio network.

characterized in that it comprises at least a step of direct communication between the said SIM chipcard (2) inserted into the mobile station and the said external device (3), without use of the said mobile radio

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network, and

in that this direct communication may be controlled by the mobile station (1).

22. Method according to the preceding claim, characterized in that the said communication is bi-directional.

23. Method according to the preceding claim, characterized in that the said communication is communication via electromagnetic waves, which requires at least one coil (23), which is integrated in the said SIM chipcard.

24. Method according to one of the claims 21 to 23, characterized in that it comprises the following: at least a step of displaying a menu with multiple choice on a display of the said data processing device;

at least a step of selecting one of the options available for selection in the menu by the user of the said mobile station;

at least a step of communicating selection instructions, which are sent directly to the said external device by the said mobile station, without using the said mobile radio network;

at least a step of executing a method, corresponding to the choice made in the said menu, by the said external device.

25. Method according to one of the claims 21 to 24, characterized in that the said communication comprises the emission of at least one instruction in an object-oriented language, e.g. Java, by the said external device, whereby this instruction is intended to be executed by processing means (20, 21) in the SIM chipcard (2).

26. Method according to one of the claims 21 to 25, characterized in that the said communication comprises the emission of at least

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one instruction in an object-oriented language, for example in the Java language, by the said SIM chipcard (2), whereby this instruction is intended to be executed by processing means in the said external device (3).

27. Method according to one of the claims 21 to 26, characterized in that the said communication <comprises> transmitting data between the said external device (3) and the said SIM chipcard (2), at least certain of which data are stored in the said SIM chipcard (2).

28. Method according to the preceding claim, characterized in that the said SIM chipcard stores a monetary amount usable with the said card, and in that the said data comprises indication of a reload-value for the said monetary amount.

29. Method according to the preceding claim, characterized in that it further comprises a subsequent step of emitting a short message, containing the said data, by the said mobile station.

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FIG. 1

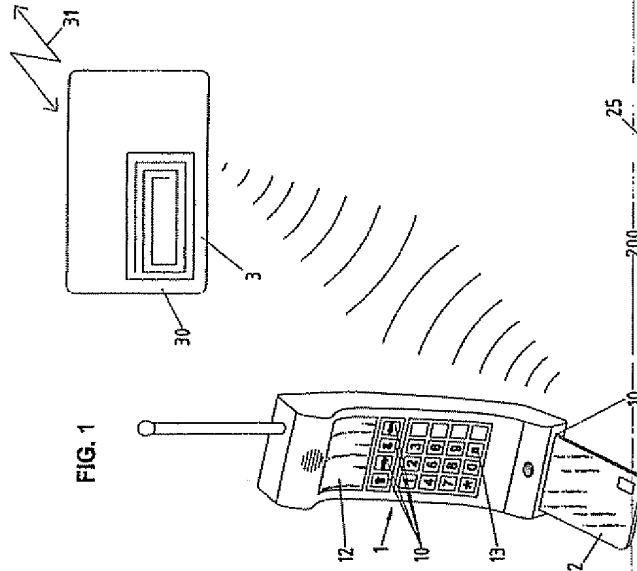


FIG. 2

